INFECTION – Clinical Outcomes Studies

PIN1

HEPATITIC-C BURDEN ASSESSMENT IN FRANCE FROM A TRANSMISSION MODEL

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OBJECTIVES: A HCV transmission model has been previously developed to describe the dynamics of chronic hepatitis-C (CHC) transmission and progression in the US. In this study, we adapted this model to assess the public health burden of HCV in France. **METHODS:** This mathematical model captures flows across population compartments based on status of injection-drug use, CHC infection, diagnosis, genotypes, treatment/re-treatment, SVR and disease progression. All input values and predicted values of 2002–2006 from the calibrated model matched closely to published French data. The model was then applied to assess the potential benefits of a hypothetical new CHC regimen (NEW) compared to the current pegylated-interferon/ribavirin (P/R) treatment. Key assumptions in the model included: NEW becomes available in 2011 with 25% incremental SVR rate (70% vs. 45%) from P/R for genotype-1 treatment-naïve patients; 50% SVR rate could be achieved by NEW to re-treat P/R treatment failure patients (TFs); TFs from NEW are not re-treated with NEW; NEW is not used to treat genotype 2/3 patients; P/R durations are consistent with current treatment guidelines by genotypes; diagnosis and treatment rates remain unchanged. **RESULTS:** Our model projects that, in contrast to P/R projections, the use of hypothetical NEW could cure 32,885 more patients (as defined by the achievement of SVR), and could prevent 7,883 more new cases of CHC, 20,658 more new cases of advanced liver diseases (ALD), and 11,100 more deaths. CHC prevalence in 2040 under NEW is also projected to be lower (29,757 fewer cases), mainly among TFs (16,782) and ALD patients (11,201). **CONCLUSIONS:** Our model suggests that a novel CHC regimen with higher SVR than the current P/R treatment could potentially have a substantial public health impact in France, mainly due to the associated decrease in the incidence of CHC prevalence, CHC-associated deaths, ALD patients and number of treatment failure patients.

PIN4

IMPACT OF SUSTAINED VIROLOGICAL RESPONSE (SVR) ON LIFE EXPECTANCY AND QUALITY-ADJUSTED LIFE-YEARS (QALYS) IN CHRONIC HEPATITIS C (CHC) PATIENTS

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OBJECTIVES: CHC treatment has been evaluated for its efficacy (SVR) and long-term effects in terms of reducing disease progression to advanced stages, long-term improvement on quality of life, and reduction of health care costs. The objective is to assess the impact of SVR in CHC patients on lifetime life years (LY) and QALY based on published cost-utility analyses. **METHODS:** A systematic literature review identified publications reporting the cost-effectiveness of antiviral therapies in CHC (November 2009). PubMed, the Centre for Reviews and Dissemination and health technology assessment (HTA) reports were searched. We included all cost-effectiveness studies based on a Markov model reporting lifetime LYs and QALYs. All of these published studies assumed that patients in the comparison groups have the same attributes such as starting age, disease states, disease progression probabilities, mortality, and utilities associated with each health state, etc. We did a back calculation on the LYs and QALYs associated with SVR and non-SVR because that SVR difference is the only difference between the two comparators for the lifetime QALY and LY differences in the final reported incremental cost-effectiveness ratio (ICER) results. **RESULTS:** A total of 893 unique references were retrieved and 80 articles met the inclusion criteria. Among them, 46 reported for each comparator the SVR rate, LYs and QALYs. Compared to non-SVR status, SVR was consistently associated with more LYs (24.5 ranging from 15.9 to 36.5 vs. 21.2 ranging from 14.2 to 32.7) and QALYs (19.2 ranging from 10.1 to 45.0 vs. 15.4 ranging from 9.9 to 30.7). This trend was consistent across all studies where this analysis is feasible (N = 40). **CONCLUSIONS:** In this literature review, SVR is associated with longer life expectancy and QALYs than non-SVR. It is important to account for these lifetime benefits when the values of an antiviral treatment in CHC are being evaluated.

INFECTION – Cost Studies

PIN5

A BUDGET IMPACT ANALYSIS OF THREE PRESURGICAL SKIN ANTISEPSIS PROTOCOLS

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OBJECTIVES: Surgical site infections (SSIs) occur in up to 11.6% of surgeries, lengthening hospital stays and incurring additional costs. Presurgical antiseptic techniques vary in the rates of SSIs and their impact on a hospital or surgical center's budget. The purpose of this study was to estimate the net budget impact of three antisepsis techniques. **METHODS:** A budget impact analysis using ISPOR guidelines was completed. Costs associated with DuraPrep, ChloraPrep, and Povidone-Iodine scrub-paint (PI) were obtained from current market sources. Rates of SSIs were derived from published clinical studies. Incremental costs to treat SSIs were derived from literature and adjusted to current U.S. dollars using the medical component of the Consumer Price Index. Presurgical skin preparation time estimates were obtained from product literature and costs calculated based on per minute surgical suite charges. Total cost per 100 surgeries was calculated: [antisepsis cost + costs of presurgical preparation + Incremental costs to treat SSIs (SSI rate X 100 X average cost to treat SSI)]. Estimates were prepared in an interactive spreadsheet to modify cost parameters and rates of SSIs. **RESULTS:** PI had the lowest product cost but its skin preparation protocol took 5 times longer than DuraPrep or ChloraPrep, resulting in large presurgical expenditures. ChloraPrep was 1.7 times more expensive than DuraPrep per unit but took similar time to apply. DuraPrep provided total cost savings relative to Chloraprep and PI. The total costs per 100 surgeries using DuraPrep, ChloraPrep, and PI were $166,920, $274,508, and $216,500 respectively. The cost savings differences were due to: 1) reduced preparation time (DuraPrep: 3 mins, ChloraPrep: 3 mins, PI: 13 mins); 2) lower SSIs (DuraPrep: 4.8%, ChloraPrep: 8.2%, PI: 4.8%); and 3) per unit product cost difference (DuraPrep: $4.27, ChloraPrep: $7.08, PI: $0.07). **CONCLUSIONS:** Based on 100 surgeries, DuraPrep provides both time and cost savings relative to PI and ChloraPrep.

PIN6

COST-ANALYSIS OF LEVOFLOXACIN IV COMPARED TO OTHER GUIDELINE-ENDORSED THERAPIES FOR PATIENTS HOSPITALIZED WITH COMMUNITY-ACQUIRED PNEUMONIA

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OBJECTIVES: Levofloxacin IV (LEV) has been shown to reduce hospital length of stay (LOS) in patients hospitalized with community-acquired pneumonia (CAP) compared to other IDSA/ATS guideline recommended antibiotic regimens. This study aimed at estimating the budgetary impact of utilizing LEV in a hospital formulary for treatment of CAP in the United States. **METHODS:** An Excel®-based model was developed in accordance with Good Research Practices for Budget Impact Analysis disseminated by ISPOR to estimate the budget impact of increasing the use of or adding LEV in a hospital formulary. The model was based on published data on shorter LOS associated with LEV compared to moxifloxacin IV (MOX) or ceftriaxone and azithromycin combination therapy (0.54 and 0.8 days, respectively). Model inputs included annual hospital admission for CAP; current proportional share of LEV, MOX, combination therapy, and other antibiotic regimens (30%, 30%, 30%, and 10%, respectively); antibiotic drug costs (wholesale acquisition costs); average LOS and hospital costs from MedPAR. All costs were in 2007 USD. A new proportional share of 60% LEV, 15% MOX, 15% combination therapy, and 10% other regimens was assumed for this analysis. Sensitivity analysis explored the impact on results of different proportions of LEV use. **RESULTS:** The total cost per treated patient with the current proportional share was estimated to be $6900. With the new share (increasing LEV utilization from 30% to 60%), total cost was estimated to decrease to $6630. A 3.9% ($270) reduction in hospital budget was mainly due to shorter LOS associated with LEV. Savings in pharmacy costs were 13% ($35/patient). Hospitals that switched all MOX and combination therapy utilization to LEV, yielded cost savings of $540/patient. **CONCLUSIONS:** The model predicts that in the base case scenario an increase in LEV for CAP inpatient treatment would yield savings to the hospital's total and pharmacy budgets.

PIN9

COST-OF-ILLNESS OF CHRONIC HEPATITIS B INFECTION IN VIETNAM

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OBJECTIVES: Vietnam is a high endemic country of hepatitis B virus infection, the most common cause of liver diseases. Our study aimed to assess the total cost of treatment chronic hepatitis B (CHB) infection and its complications in a cost-of-illness analysis to quantify the economic burden of CHB infections in Vietnam. **METHODS:** Micro-costing approach was applied. Direct medical cost, direct non-medical and indirect costs incurred due to chronic hepatitis B-related disease stages to both inpatients and outpatients were collected and estimated for the year 2008. One-and two-way sensitivity analyses were performed on the cost calculated. **RESULTS:** In 2008, the total cost of CHB infection and its complications was estimated to be around US$ 10 billion (or US$ 9 billion contributable to the direct medical cost). Antivirals are still very expensive in Vietnam in comparison to other countries and the major driver of costly treatment of CHB infection in the country. If all Vietnamese patients received treatment of CHB infections, the estimated treatment cost would be twice as much as the total health budget of Vietnam. This highlighted the possibilities that a significant proportion of CHB infections in Vietnam are not being treated; the patients are bearing the extra cost out-of-pocket, or they are seeking treatment from traditional medicines. **CONCLUSIONS:** Treatment of CHB infection is very expensive and becomes a medical problem and a social issue. Given the GDP per capita of around $ 1024, it is potentially catastrophic for those affected. It is urgent that Vietnam should consider universal HBV vaccination of both newborns and adolescents. It should re-examine its pharmaceutical policy to ensure the cost of antivirals to be affordable to patients. Necessary steps should be taken to ensure that the health system has mechanisms in place to ensure financial protection to affected patients and in need of treatment.